

JAF/TRB

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:
TERESA J. WELCH
MICHAEL BEST & FRIEDRICH LLP
ONE SOUTH PINCKNEY STREET
PO. BOX 1806
MADISON, WI 53701-1806

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NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Rule 71.1)

Date of mailing
(day/month/year)

16 NOV 2006

Applicant's or agent's file reference

013670-9003-WO00

IMPORTANT NOTIFICATION

International application No.

International filing date (day/month/year)

Priority date (day/month/year)

PCT/US04/37932

12 November 2004 (12.11.2004)

14 November 2003 (14.11.2003)

Applicant

INTEGRATED DNA TECHNOLOGIES, INC.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the *PCT Applicant's Guide*.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the IPEA/ US

Mail Stop PCT, Attn: IPEA/US

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

Fiona T. Powers

Telephone No. 571-272-1600

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 013670-9003-WO00	FOR FURTHER ACTION		See Form PCT/IPEA/416																								
International application No. PCT/US04/37932	International filing date (day/month/year) 12 November 2004 (12.11.2004)	Priority date (day/month/year) 14 November 2003 (14.11.2003)																									
International Patent Classification (IPC) or national classification and IPC IPC: C09B 29/01 (2007.01); 29/08 (2007.01); C12Q 1/68 (2007.01); C07H 21/04 (2007.01) USPC: 534/727,839;435/6																											
Applicant INTEGRATED DNA TECHNOLOGIES, INC.																											
<ol style="list-style-type: none"> 1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: <ol style="list-style-type: none"> a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of ___ sheets, as follows: <div style="margin-left: 20px;"> <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. </div> b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). 4. This report contains indications relating to the following items: <table style="margin-left: 20px; border: none;"> <tr><td><input checked="" type="checkbox"/></td><td>Box No. I</td><td>Basis of the report</td></tr> <tr><td><input type="checkbox"/></td><td>Box No. II</td><td>Priority</td></tr> <tr><td><input type="checkbox"/></td><td>Box No. III</td><td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td></tr> <tr><td><input type="checkbox"/></td><td>Box No. IV</td><td>Lack of unity of invention</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>Box No. V</td><td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td></tr> <tr><td><input type="checkbox"/></td><td>Box No. VI</td><td>Certain documents cited</td></tr> <tr><td><input type="checkbox"/></td><td>Box No. VII</td><td>Certain defects in the international application</td></tr> <tr><td><input checked="" type="checkbox"/></td><td>Box No. VIII</td><td>Certain observations on the international application</td></tr> </table> 				<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application																									
Date of submission of the demand 03 June 2005 (03.06.2005)		Date of completion of this report 30 October 2006 (30.10.2006)																									
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201		Authorized officer Fiona T. Powers Telephone No. 571-272-1600																									

Form PCT/IPEA/409 (cover sheet)(April 2005)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/37932

Box No. I Basis of the report1. With regard to the **language**, this report is based on:

- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4(a))
- ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☒ the international application as originally filed/furnished
- ☒ the description:
pages 1-23 as originally filed/furnished
pages* NONE received by this Authority on _____
pages* NONE received by this Authority on _____
- ☒ the claims:
pages 24-29 as originally filed/furnished
pages* NONE as amended (together with any statement) under Article 19
pages* NONE received by this Authority on _____
pages* NONE received by this Authority on _____
- ☒ the drawings:
pages 1/1 as originally filed/furnished
pages* NONE received by this Authority on _____
pages* NONE received by this Authority on _____
- ☒ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/figs NONE
- ☒ the sequence listing (*specify*): NONE
- ☒ any table(s) related to the sequence listing (*specify*): NONE

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US04/37932**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims <u>4, 6, 7, 9, 10, 16, 19-41</u>	YES
	Claims <u>1-3, 5, 8, 11-15, 17, 18</u>	NO
Inventive Step (IS)	Claims <u>4, 6, 7, 9, 10, 16, 19-41</u>	YES
	Claims <u>1-3, 5, 8, 11-15, 17, 18</u>	NO
Industrial Applicability (IA)	Claims <u>1-41</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and Explanations (Rule 70.7)
Please See Continuation Sheet

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/37932

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 2, 20 and 21 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims 2, 20 and 21 are indefinite for the following reason(s): in claim 2, R is not defined. In claims 20 and 21 CEP is not defined.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/37932

Supplemental Box Relating to Sequence Listing

Continuation of Box No. I, item 2:

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this report was established on the basis of:

a. type of material



a sequence listing



table(s) related to the sequence listing

b. format of material



on paper



in electronic form

c. time of filing/furnishing



contained in the international application as filed



filed together with the international application in electronic form



furnished subsequently to this Authority for the purposes of search and/or examination



received by this Authority as an amendment* on _____

2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

* If item 4 in Box No. I applies, the listing and/or table(s) related thereto, which form part of the basis of the report, may be marked "superseded."

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

V. 2. Citations and Explanations:

Claims 1 to 3, 5, 8, 11 to 15, 17 and 18 lack novelty under PCT Article 33(2) as being anticipated by Hamprecht et al (DE 2546535) or Japanese Patent 52-91031.

The references disclose the claimed chemical composition of the Formula 1 wherein R_2 is an electron withdrawing group which is halogen, NO_2 or CN and R_7 is a substituted aryl group which is an anilyl group of the Formula 2 where L and L' are linking groups which may be nonreactive and may comprise a hydroxyethyl group in which the hydroxy group may be protected. Note Examples 1-17 of Hamprecht et al. and the examples of JP 52-91031.

Claims 1 to 3, 5, 8, 11 and 12 lack novelty under PCT Article 33(2) as being obvious over Japanese Patent 52-088681.

The reference discloses the claimed chemical composition of the Formula 1 wherein R_2 is an electron withdrawing group which is NO_2 and R_7 is a substituted aryl group which is a naphthyl group. Note the examples.

Claims 1, 2, 5, 8, 11 and 12 lack novelty under PCT Article 33(2) as being obvious over Elslager et al. (US 3218309).

The reference discloses the claimed chemical composition of the Formula 1 wherein at least one of R_{1-6} is hydrogen and R_7 is a substituted aryl group which is a naphthyl group. Note column 8, lines 59 to 60.

Claims 1, 2, 5, 8, 11 to 15, 17 and 18 lack novelty under PCT Article 33(2) as being obvious over Ho et al.

The reference discloses the claimed chemical composition of the Formula 1 wherein at least one of R_{1-6} is hydrogen and R_7 is a substituted aryl group which is an anilyl group of the Formula 2 wherein one of L and L' is a nonreactive linking group and the other is a hydroxyethyl group which may be protected. Note pages 6124-6125 NDR1M.

Supplemental Box

Claims 1 to 3, 5, 8, 11 to 15, 17 and 18 lack an inventive step under PCT Article 33(3) as being obvious over Hamprecht et al (DE 2546535) or Japanese Patent 52-91031.

The references disclose the claimed chemical composition of the Formula 1 wherein R_2 is an electron withdrawing group which is halogen, NO_2 or CN and R_7 is a substituted aryl group which is an anilyl group of the Formula 2 where L and L' are linking groups which may be nonreactive and may comprise a hydroxyethyl group in which the hydroxy group may be protected. Note Examples 1-17 of Hamprecht et al. and the examples of JP 52-91031. One of ordinary skill in the art would have been motivated to make additional compounds useful as dyes by modifying the linking groups of compounds disclosed by the references.

Claims 1 to 3, 5, 8, 11 and 12 lack an inventive step under PCT Article 33(3) as being obvious over Japanese Patent 52-088681.

The reference discloses the claimed chemical composition of the Formula 1 wherein R_2 is an electron withdrawing group which is NO_2 and R_7 is a substituted aryl group which is a naphthyl group. Note the examples. One of ordinary skill in the art would have been motivated to make additional compounds useful as dyes by modifying the linking groups of compounds disclosed by the reference.

Claims 1, 2, 5, 8, 11 and 12 lack an inventive step under PCT Article 33(3) as being obvious over Elslager et al. (US 3218309). The reference discloses the claimed chemical composition of the Formula 1 wherein at least one of R_{1-6} is hydrogen and R_7 is a substituted aryl group which is a naphthyl group. Note column 8, lines 59 to 60. One of ordinary skill in the art would have been motivated to make additional compounds useful as dyes by modifying the linking groups of compounds disclosed by the reference.

Claims 1, 2, 5, 8, 11 to 15, 17 and 18 lack an inventive step under PCT Article 33(3) as being obvious over Ho et al.

The reference discloses the claimed chemical composition of the Formula 1 wherein at least one of R_{1-6} is hydrogen and R_7 is a substituted aryl group which is an anilyl group of the Formula 2 wherein one of L and L' is a nonreactive linking group and the other is a hydroxyethyl group which may be protected. Note pages 6124-6125 NDR1M. One of ordinary skill in the art would have been motivated to make additional compounds useful as dyes by modifying the linking groups of compounds disclosed by the reference.

Claims 4, 6, 7, 9, 10, 16 and 19 to 41 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the compositions of the Formula 1 as defined by the claims, the method of hybridizing nucleic acid polymers or the method for synthesizing an oligonucleotide containing a fluorescent quenching composition.

Claims 1 to 41 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.